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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

ELAN MICROELECTRONICS CORPORATION, Plaintiff and Counterclaim Defendant, v. APPLE INC., Defendant and Counterclaim Plaintiff.	Case No. C-09-01531 RS (PVT) **APPLE'S OPENING CLAIM CONSTRUCTION BRIEF** JURY TRIAL DEMANDED Hon. Richard Seeborg Tutorial: June 21, 2010 1:30 p.m. Hearing: June 23, 2010 1:30 p.m.

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Pursuant to the Court's March 18, 2010 Case Management Scheduling Order, Apple submits this Opening Claim Construction Brief in support of its proposed constructions for terms in the following patents-in-suit: United States Patent Nos. 5,825,352 ("the '352 patent); 7,274,353 ("the '353 patent"); 5,764,218 ("the '218 patent"); and 7,495,659 ("the '659 patent"). There are nine terms scheduled to be construed by the Court during this claim construction process, the parties having jointly identified these terms as most significant to the resolution of this case.

INTRODUCTION

It is fundamental that the proper scope of a patent claim must be grounded in an understanding of "what the inventors actually invented and intended to envelop with the claim." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc). Elan's proposed claim constructions repeatedly ignore this guiding principle and instead reflect a legally–improper, results-driven approach.

For Elan's asserted patents, Elan ignores the express language of the claims as well as the uniform descriptions of the claimed inventions in an effort to stretch narrow, prior generation patents to cover next generation, sophisticated technologies. For one of the patents, Elan belatedly changed its claim construction positions—on the eve of its expert's deposition and just days before the original due date for opening claim construction briefs—to read out express limitations recited in the claim language, presumably because Elan recognized problems with its infringement case. Notably, the limitations Elan now seeks to remove are the same limitations that were (1) advocated by Elan in a prior litigation as "mandated" by the intrinsic record, (2) adopted by Judge Breyer in the prior litigation, and (3) relied on by Elan in obtaining summary judgment of infringement and a preliminary injunction in the prior litigation. *See Elantech Devices Corp. v. Synaptics, Inc.*, No. C 06-01839 CRB (N.D. Cal. filed Mar. 10, 2006) (hereinafter "the *Synaptics* litigation"). Setting aside that Elan's new position is inconsistent with both the merits and principles of estoppel, Elan's brazen attempt to change a construction it has advocated as correct for years at this late date only demonstrates that Elan's approach to claim construction is guided more by its end-game than a fair analysis of claim scope. This approach is mirrored in other instances, where Elan proposes that significant claim limitations that frame core

disputes on ultimate issues simply go unconstrued such that Elan can pursue its sweeping infringement theory through summary judgment and trial.

Likewise, for Apple's asserted patents, Elan ignores the claims and the intrinsic evidence that sheds light on the scope of the claimed inventions and instead seeks to construe the patents unduly narrowly based on incomplete and out-of-context snippets of evidence. In doing so, Elan again fails to give meaning to the true scope of the invention, and fails to give effect to the fundamental principle that claims should be construed to cover what was actually invented—no more and no less.

LEGAL FRAMEWORK

Because the Court is very familiar with the general legal framework for claim construction, Apple does not restate the general of law claim construction here. *See, e.g.*, *Aqua-Lung Am., Inc. v. Am. Underwater Prods.*, No. C 07-2346 RS, 2009 U.S. Dist. LEXIS 18172, at *3-*6 (N.D. Cal. Feb. 26, 2009), (Exh. A).[1] Specific authorities are cited and discussed below within the context of the issues to which they apply.

ARGUMENT

Each of the patents at issue relates to different aspects of touch-sensitive input technology for computers or electronic devices. Generally speaking, touch-sensitive input devices allow a user to interact with the computer or electronic device by touching the touch-sensitive input with their fingers, as in a laptop touchpad. The touch-sensitive input device processes a user's contacts to determine and perform functions based on a user's commands.

I. U.S. PATENT NO. 5,825,352

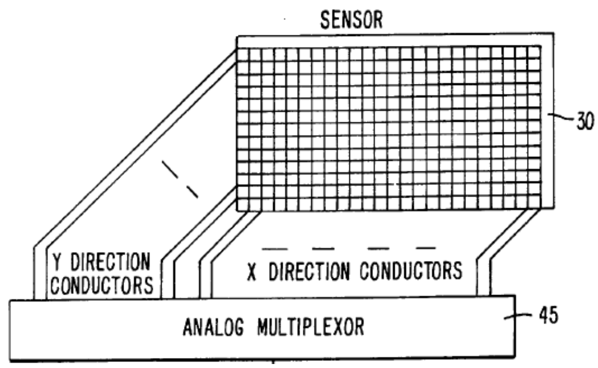
A. Background

Elan's '352 patent relates to a specific technique for detecting whether multiple fingers are simultaneously in contact with a touch-sensitive input device. Exh. B [Von Herzen Decl.] at pp. 2-3; *see also* Exh. C ['352 patent] at Abstract. The stated purpose of detecting a second (or subsequent) finger is to perform conventional mouse functions with a touchpad where such

[1] Exhibit citations are to the Declaration of Derek Walter filed concurrently herewith.

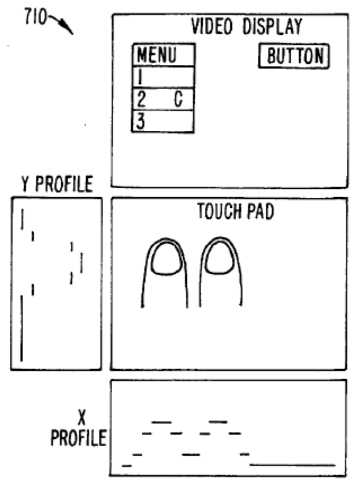
functions cannot be performed if only one finger can be detected. *See, e.g.*, *id.* at 1:41-2:14, 2:56-3:15. The '352 patent does not pertain to touch sensing technology itself. Rather, the '352 patent describes and claims a technique that uses "finger profiles" to count the number of contacts on a known touch sensing device. *See id.* at 1:18-26, 2:20-27.

In particular, throughout its disclosure, the '352 patent describes detecting the presence of more than one finger using a capacitive touchpad in which capacitance values reflecting touches to the touchpad are measured along a series of parallel conductive "traces" that extend across either the length or width of the touchpad, as shown below:

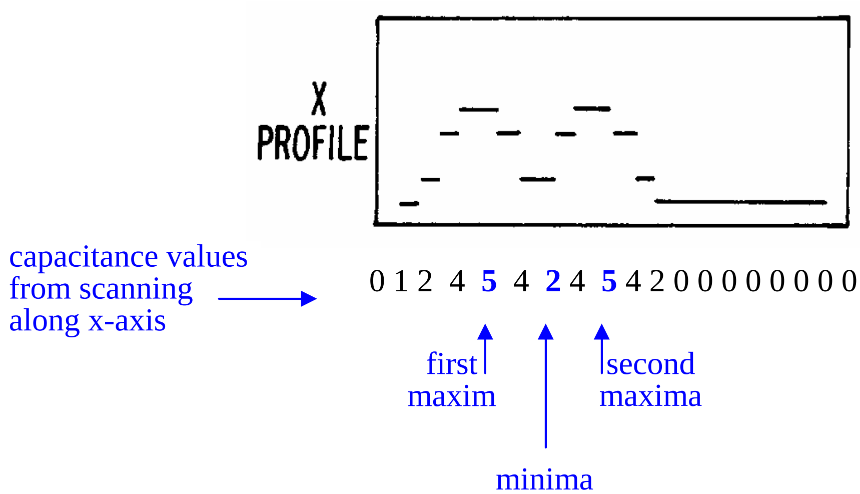


Id. at Fig. 2, 2:18-37 (describing and incorporating by reference patents disclosing known capacitance touchpads); *see also id.* at 5:20-43. Significantly, only one value is read per trace line, with that value reflecting the overall capacitance reading for that entire trace. *Id.* at 5:55-6:1 ("As noted above, the cycle begins by scanning the traces and measuring the capacitance on each trace."); 5:35-43 (incorporating by reference application Ser. No. 08/478,290 describing a capacitive touchpad that generates a finger profile comprised of one value from each trace).

According to the '352 patent, these traces are scanned along either the x- or y-axis to provide a series of capacitance values corresponding to the intensity of one or more finger contacts along the surface of the touchpad along that axis. In other words, the touches of the finger(s) to the touchpad are projected onto the x- and y-axes to create x- and y-profiles of the finger(s). For instance, if two fingers were to come into contact with the touchpad shown above, finger profiles in the x-direction and the y-direction would be generated, as reflected in the figure below:



Id. at Fig. 7B; *see also* Figs. 3, 4, 7C-7F. Each of these finger profiles is a one-dimensional representation of the touches to the touchpad projected onto an axis.[2] *See* Exh. D [Dezmelyk Tr.] at 101:5-9. For instance, each vertical trace provides a single capacitance value such that the "finger profile" labeled "X Profile" comprises a series of values along the x-axis:



See Exh. C ['352 patent] at Fig. 7B (labels and values superimposed for illustrative purposes). Likewise, the "finger profile" labeled "Y Profile" comprises a series of capacitance values along the y-axis, one for each horizontal trace.

The process of reducing touches to a profile along an axis and then analyzing that profile to discern multiple touches is central to the invention of the '352 patent. The claims of the '352 patent set forth a specific method for detecting the presence of two contacts on a touchpad by analyzing the finger profile obtained from scanning a touchpad. *See, e.g., id.* at 6:28-35. The

[2] The x-profile and y-profile are each one dimensional in that they reflect values associated with only a single axis. Peaks and valleys in the x-profile represent the magnitude of capacitance values along the x-axis, but do not provide any information about the y-dimension.

method first recites scanning a touch sensor to "identify a first maxima in a signal corresponding to a first finger," "identify a minima following the first maxima," and "identify a second maxima in a signal corresponding to a second maxima following [the] minima." The method then requires "providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima." *See id.* at Claims 1, 18.

According to the claims (and consistent with the specification and file history), this identification is accomplished by traversing through the sequence of values in the finger profile and identifying a maxima, then identifying a minima, and then identifying another maxima. *See, e.g, id.* at 9:18-10:30. For example, in the figure below, two touches are indicated in a finger profile taken on the x-axis because the profile reflects a first peak 85 (representing a first finger) followed by a valley 90 (representing the space between fingers) followed by another peak 95 (representing the second finger) as one traverses the profile from left-to-right:

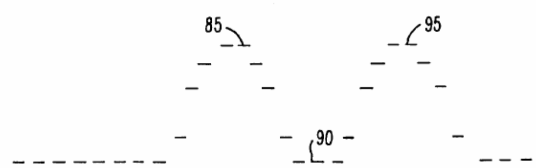


FIG. 3.

See, e.g., id. at Fig 3. The '352 patent explains that the identification of two maxima with an intervening minima occurs sequentially along the axis of the profile, in both space and time. According to the patent, two touches are indicated by "detect[ing] a first maxima 85 indicative of a first finger in operative proximity to the touchpad 30, ***followed by*** a minima 90 indicative of a space between the fingers, and ***further followed by*** another maxima 95 indicative of a second finger operatively coupled to the touchpad 30."[3] *Id.* at 6:28-35; *see also id.* at 9:18-10:25 (describing Xcompute algorithm for identification of peaks and valleys along x-axis).

[3] Emphasis added and internal citations omitted throughout, unless otherwise noted.

B. "Identify a First Maxima in a Signal Corresponding to a First Finger" /"Identify a Minima Following the First Maxima"/"Identify a Second Maxima in a Signal Corresponding to the Second Finger Following said Minima" (Claims 1 and 18)

Term	Court's Construction from *Synaptics*	Apple's Construction	Elan's Construction
"identify a first maxima in a signal corresponding to a first finger"	Identify a first peak value in a finger profile obtained from scanning the touch sensor.	Identify a first peak value in a finger profile taken on an axis obtained from scanning the touch sensor.	Identify a first peak value in a finger profile obtained from scanning the touch sensor.
"identify a minima following the first maxima"	Identify the lowest value in the finger profile that occurs after the first peak value and before another peak value is identified.	Identify the lowest value in the finger profile taken on said axis that occurs after the first peak value and before another peak value is identified.	Identify the lowest value in the finger profile that occurs after the first peak value.
"identify a second maxima in a signal corresponding to the second finger following said minima"	After identifying the lowest value in the finger profile, identify a second peak value in the finger profile.	After identifying the lowest value in the finger profile taken on said axis, identify a second peak value in the finger profile taken on said axis.	Identify a second peak value in the finger profile following the minima.

In *Synaptics*, Judge Breyer concluded that the claims should be construed to require identification of maxima and minima in reference to a "finger profile"—***exactly*** as Elan advocated the claims should be construed. Until recently, the parties' only dispute on the above limitations was the nature of the "finger profile" required by Judge Breyer's constructions of these limitations. Apple's position is that it is central to the alleged invention of the '352 patent, and confirmed conclusively throughout the specification and claims, that a "finger profile" is a one-dimensional representation of finger contact taken along an axis of the touchpad. In contrast, Elan has sought to recast Judge Breyer's constructions to broaden a "finger profile" to cover virtually any representation of a touch, without reference to the dimensionality or the axis along which that representation is generated. Indeed, as shown below, Elan's re-interpretation of a finger profile improperly recasts the alleged invention of the '352 patent in a way that the claims simply were not intended to cover and that has no basis in the specification.

The same is true for a second fundamental dispute relating to the '352 patent, this one arising for the first time on the eve of claim construction briefing in this case. As reflected in the parties' February 5, 2010 Joint Claim Construction Statement and the claim construction

disclosures leading up to it, Elan had long agreed with Apple that Judge Breyer correctly construed the claims to require the sequential identification of a first peak value in a finger profile followed by identification of the lowest value in the finger profile followed by identification of second peak value in the profile—***exactly*** as Elan proposed they be construed. Apparently concerned that the construction it advanced and that Judge Breyer adopted in *Synaptics* would harm its infringement theory in this case, Elan recently decided to abandon these limitations altogether and try a new approach. Thus, more than two months after the parties' filed their Joint Claim Construction Statement and on the day before Apple was to depose Elan's claim construction expert, Elan came forward with new constructions that purport to read-out the claim requirements of sequential identification of the minima following a first maxima and a second maxima following that minima. As with its attempt to recast the requirement of a "finger profile" Elan itself urged in *Synaptics*, Elan's eleventh-hour attempt to discard Judge Breyer's constructions as a whole must be rejected, both procedurally and substantively.

1. Elan Is Estopped From Challenging Judge Breyer's Constructions

Elan confirmed long ago that the "identify a first maxima…," "identify a minima …," and "identify a second maxima..." limitations should be construed to require the sequential identification of maxima and minima on a finger profile, both temporally and spatially. In the *Synaptics* litigation, Elan argued to Judge Breyer that the intrinsic evidence ***"mandates"*** its proposed construction that these terms be construed to require identification of profile values sequentially, where the method "identif[ies] the lowest value in the finger profile that occurs after the first peak value ***and before another peak value is identified***." Exh. E [Elantech Opening CC Br.] at 11. According to Elan, its constructions were "based on the meaning of the term in the context of the '352 patent … " and were supported by the specification and file history of the patent. *Id.*; Exh. F [Elantech Reply CC Br.] at 6.

After successfully convincing Judge Breyer that this was so and receiving ***exactly*** the constructions it sought for these terms, Elan sought both a summary judgment of infringement and a preliminary injunction on Synaptics' products. In so arguing, Elan's counsel, Mr. DeBruine, could not have been more clear as to Elan's position on the scope of the patent:

> So again, the claim language here, and this is important, the claim language says identify a first maxima, identify a minima, identify a second maxima. . . . How is it identified in the -- in the patent? You compare X(n) to X(n-l), until you find a excuse me, a place that is higher than its neighbors. ***You continue that comparison of the value associated with a particular trace to its neighboring trace, until you find the lowest value. You then continue on your analysis, trace by trace, until you find the trace that has the highest value.***

Exh. G [Oct. 5, 2007 SJ Hearing Tr.] at 31:4-23. Elan ultimately won summary judgment and a preliminary injunction on the basis of this construction, and when Synaptics appealed these results to the Federal Circuit, Elan did nothing to change the positions it took before Judge Breyer. *See* Exh. H [Elantech Appeal Br.] at 16-17 (emphasizing that Synaptics did not appeal Judge Breyer's claim constructions).

Not surprisingly, Elan had been intent in this litigation on reestablishing the constructions that it believed had served it so well in *Synaptics*. During claim construction meet and confer, Elan agreed with Apple that Judge Breyer's constructions (which adopted Elan's proposed constructions) should form the baseline for claim construction in this matter. In the parties' Joint Claim Construction and Prehearing Statement ("JCCS"), Elan presented constructions virtually identical to those it received in the *Synaptics* litigation,[4] specifically citing to Judge Breyer's Claim Construction Order as supporting its constructions. *See* D.I. 60, Exh. A at 1-4.

However, just days before the original deadline for submission of opening claim construction briefs and on the eve of the deposition of its claim construction expert, Elan informed Apple that it would not be relying on Judge Breyer's constructions after all. According to Elan, it had inadvertently failed to modify its previous constructions to remove a critical aspect of Judge Breyer's construction—that the steps of identifying the maxima and minima must occur in sequence. *See* Exh. I [4/8/10 DeBruine email]. Elan provided no explanation for its change of position, nor could there be any legitimate basis for the reversal of position. There have, of course, been no changes in the intrinsic record that had once "mandated" these constructions in the *Synaptics* litigation, let alone since the JCCS, that would justify this reversal. The only thing that may have changed is Elan's own realization that the claim constructions it had adopted for

[4] The one exception here concerned the claim term "identify a minima following the first maxima," for which the language "and before another peak value is identified" was inadvertently omitted by Apple, which prepared and filed the Joint Claim Construction Statement.

years simply do not apply to Apple's two-dimensional touch imaging products.

Elan's tactic of abandoning once-embraced and litigated claim constructions is barred by both the doctrines of collateral and judicial estoppel. Not only is Elan collaterally estopped based on Judge Breyer's prior claim construction ruling, but it is judicially estopped because it was Elan itself that successfully advocated for that construction and ultimately relied on it in obtaining summary judgment and a preliminary injunction. *See, e.g., Schindler Elevator Corp. v. Otis Elevator Co.*, 593 F.3d 1275, 1282 n.1 (Fed. Cir. 2010) ("Schindler also requests that we strike the phrase 'via electromagnetic waves' from the district court's construction of 'information transmitter.' But the construction of 'information transmitter' that Schindler proposed to the district included that very phrase. We therefore decline to alter the district court's construction as it pertains to electromagnetic waves."); *Solomon Techs. Inc. v. Toyota Motor Corp.*, No. 8:05-cv-1702-T-MAP, 2010 U.S. Dist. LEXIS 23676, at *10 (M.D. Fla. Jan. 26, 2010), (Exh. J) ("[Solomon's] positions regarding the means-plus-function limitation[s] are patently inconsistent; its stipulation and then retraction create an inappropriate perception; and, if its new arguments were to be accepted and judicial estoppel were not to apply, it would unfairly benefit."); *Smith & Nephew, Inc. v. Arthrex, Inc.*, No. CV 04-29-MO, 2007 U.S. Dist. LEXIS 27499, at *7-*8 (D. Or. Apr. 12, 2007), (Exh. K) (finding collateral estoppel where "the goals of uniformity, consistency, and public notice would be completely undermined if the patentee were allowed to change the meaning of the patent words based on the facts of a given case"). In short, Elan is doubly barred from advocating its new position.

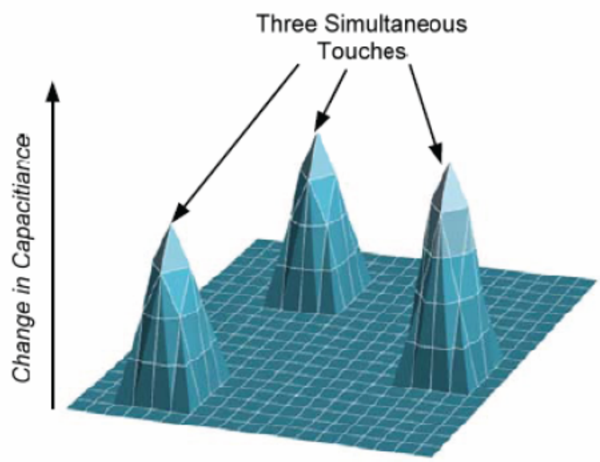
2. Even Setting Aside Estoppel, Apple's Proposed Constructions Should Be Adopted On The Merits

a. Apple's Proposed Construction Gives Effect To The Relational Requirements Of The Claim Language

In the *Synaptics* litigation, Elan made clear that the claim term "following" cannot be ignored. Exh. F [Elantech Reply CC Br.] at 1, 5. Adopting Elan's own proposed constructions, Judge Breyer gave the "following" limitation meaning in two important ways, requiring that identification of maxima and minima in the claims be performed sequentially ***in space*** and ***in time***: identification of a "first peak value in a finger profile", followed by identification of the

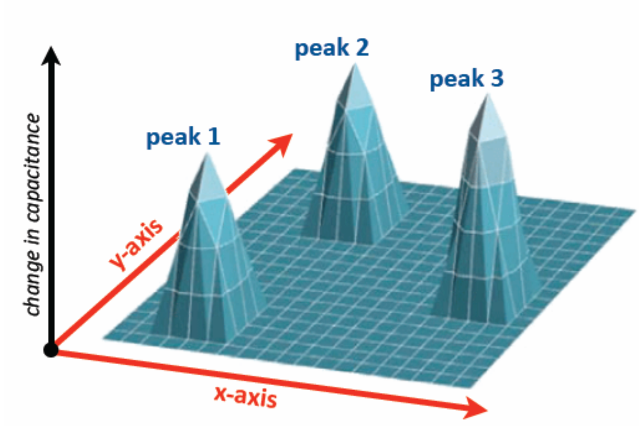
"lowest value in the finger profile" after identification of the first peak value and "before" identification of another peak value, and then, "after" identification of the "lowest value," identification of a "second peak value in the finger profile." Exh. L [Apr. 6, 2007 CC Order] at 15. These relational requirements are expressly recited in the claims, were urged by Elan in the *Synaptics* litigation, were adopted by Judge Breyer in the *Synaptics* litigation, and were embraced again by Elan here until just recently. Nevertheless, Elan now seeks to run from these relational requirements. Indeed, Elan's latest constructions explicitly disavow the temporal requirements of the claims by removing any trace of the sequential identification of maxima and minima from its proposed constructions. *See, e.g.*, Exh. D [Dezmelyk Tr.] at 42:8-15 (testimony of Elan's expert that Elan is modifying its constructions to "remove the temporal nature of [them]").

With respect to the spatial requirements that Elan embraced in *Synaptics* and that Elan purports to advance here, Elan urges constructions that effectively read them out of the claims in the context of this case. *See id.*; *see also* Exh. F [Elantech Reply CC Br.] at 1, 5. Indeed, unlike the one-dimensional context of the '352 patent—where every maxima and minima inherently falls along the finger profile—the requirement that maxima and minima follow each other is meaningless in the two-dimensional context of Apple's modern products. Taking as an example the image that Elan contends is a profile of touches on a touchpad, it is clear that the relational requirements of the claims simply have no meaning in this context:



See Exh. M [Dezmelyk Summary] ¶ 22. Absent an axis to traverse, there is no starting place and no definitive way to order the peaks or identify one peak as "following" another. For example, in the figure above, any peak could "follow" any other peak, depending on which axis is the point of

reference. As shown below, Peak 2 follows Peak 1 and precedes Peak 3 as one travels from left-to-right along the x-axis, while Peak 3 follows Peak 1 and precedes Peak 2 along the y-axis:



Indeed, without an axis for reference, Elan's proposed constructions provide no construct, frame of reference, or formula of any sort for determining whether, in a two-dimensional plane, one object is "first," "second," or "following" another. It is thus no surprise that, when confronted with this figure in deposition, Elan's expert was forced to concede that the figure above is in fact ***not*** a finger profile. Exh. D [Dezmelyk Tr.] at 141:4-23.

In contrast, Apple's proposed constructions appropriately include a prescription for determining whether the maxima and minima follow one another in the finger profile as required by the claim. Specifically, Apple's construction requires that identification of maxima and minima occur sequentially in a finger profile "taken on an axis." While placing no limitation on touchpad hardware or the type or orientation of the axes selected (for example, it could be taken along an axis that is diagonal to the x- and y-axes), this construction at the same time removes ambiguity regarding how to identify the "minima" that is "following" the first peak. One simply traverses values along the axis and sequentially—both in space and in time—identifies a peak, a valley, and then another peak. This sequential identification of maxima and minima along an axis breathes meaning into the relational claim language "first," "second," and, in particular, "following," in a way that Elan's proposed construction simply cannot. *See Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) ("claims are interpreted with an eye toward giving effect to all terms in the claim"). By omitting the requirement of sequential identification of maxima and minima both spatially and temporally, Elan apparently seeks to argue, as the need

arises, that various values identified in a two-dimensional image can be identified in any way and in any order it desires to conjure a "finger profile" that purportedly fits the structure of the claims. Of course, this sort of *post hoc* identification of maxima and minima is simply not the recipe of the claims.

b. Apple's Proposed Construction Comports With The Specification's Consistent Description Of The Spatial And Temporal Requirements Of The Invention

Claim language does not stand in a vacuum. Here, the specification not only supports Apple's proposed constructions, but compels them. The requirement that a finger profile be taken on an axis, both in space and time, is not borne from one or a handful of embodiments or disclosures in the specification. It is essential to the very character of the claimed invention and is foundational to ***every*** embodiment and disclosure in the '352 patent. *See, e.g.*, *Kinetic Concepts, Inc. v. Blue Sky Med. Group, Inc.*, 554 F.3d 1010, 1019 (Fed. Cir. 2009) ("All of the examples described in the specification involve skin wounds. To construe 'wound' to include fistulae and 'pus pockets' would thus expand the scope of the claims far beyond anything described in the specification.").

The '352 patent provides clear guidance that a finger profile is taken ***on an axis***, whether in the X direction, Y direction, or some other angular direction:

> While the foregoing example describes identification of minima and maxima in the ***X and Y directions***, it will be apparent that an analysis along ***a diagonal or some other angular direction*** may be preferred in some instances, and is still within the scope of the present invention.

Exh. C ['352 patent] at 11:11-15. In other words, while the invention was disclosed using the X and Y axes, other embodiments within the scope of the invention include "analysis along a diagonal or some other angular direction." The "analysis" is, however, ***always*** "along" a "direction," or, more simply, on an axis. It is particularly noteworthy that, in attempting to explain the breadth of the claims, the patentees at the same time confirmed that the claims were limited to the analysis of finger profiles taken along an axis, as reflected in Apple's construction. This understanding permeates the specification.

For instance, the patentee explained the "only requirement" vis-à-vis distinguishing

among fingers as follows:

> The only requirement is that, in the profile of finger-induced capacitances, the profile of the newly placed finger exhibits a zero value or a local minimum on ***each side of its peak value, in at least one of the X or Y directions,*** so that it may be distinguished from the other finger(s) in contact with the touchpad.

Id. at 11:49-55. Referring to minima on "each side" of a peak, and calling for those minima to be reflected in profiles taken in "at least one of the X or Y directions," confirms that the '352 invention requires the analysis of finger profiles that are taken along an axis. Even Elan's expert admits that the specification does not describe any other embodiment of a finger profile. *See* Exh. D [Dezmelyk Tr.] at 140:23-141:3 141:25-142:7, 142:20-143:6.

Likewise, in describing "a finger profile … indicative of the presence of two fingers spaced apart," the specification explains that "the circuitry, software or firmware of the touchpad circuitry, such as that shown in Fig. 2, detects a first maxima 85 indicative of a first finger in operative proximity to the touchpad 30, ***followed*** by a minima 90 indicative of a space between the fingers, and further ***followed*** by another maxima 95 indicative of a second finger operatively coupled to the touchpad 30." Exh. C ['352 patent] at 6:26-38, Fig. 3; *see also* 6:39-47, Fig. 4. Thus, the specification, like the claims, discloses an ordered sequence of maxima and minima that are identified "following" one another both temporally and spatially in the finger profile.

Consistent with this, the sole process of identifying two fingers disclosed in the '352 patent—both generally and in all embodiments—makes use of a finger profile taken on either the x- or y-axis. *See, e.g., id.* at 1:28-40, 5:20-55, Fig. 2; *see also* Figs. 7C, 7D, 7E, 7F-1 and 7F-2, Exh. B [Von Herzen Decl.] at pp. 5-6. As explained above, the '352 patent's touch-sensor technology only produces finger profiles that are along an axis. Specifically, the touchpad sensor disclosed in the specification includes both "X DIRECTION CONDUCTORS" and "Y DIRECTION CONDUCTORS." Exh. C ['352 patent] at Fig. 2; *see also id.* at 5:28-32 ("The rows and columns are connected to an analog multiplexer 45 through a plurality of X (row) direction conductors 50 and a plurality of Y (column) direction conductors 55 one conductor for each row and each column."). Thus, the concept of a specific "DIRECTION" is intrinsic to the technology used to acquire the finger profiles in all disclosed embodiments of the '352 patent.

This would make little sense unless the finger profiles were to be taken along an axis, such as the "X DIRECTION" or "Y DIRECTION" axes of Fig. 2.

The notion of traversing "along an axis"—both in space and in time—is perhaps nowhere more evident than with respect to the very algorithm disclosed in the specification for ascertaining the presence of maxima and minima. Indeed, the series of values through which the algorithm traverses is labeled according to an axis on which it is taken (either the X or Y axis), thus directly embodying the concept of the finger profile being taken along an axis. *See, e.g.*, Exh. C ['352 patent] at 5:63-65 ("[T]his finger-induced capacitance is stored in RAM, as X(1) through X(Xcon) and Y(1) through Y(Ycon) . . . ."); *see also* Exh. B [Von Herzen Decl.] at pp. 5-6. In fact, nearly every variable used in connection with the disclosed algorithm is named according to the direction along which the profile is taken. Exh. C ['352 patent] at 7:11-23, 8:55-9:18. Perhaps most telling, the algorithm is itself entitled either "Xcompute" or "Ycompute" depending on the axis along which the profile is taken. Exh. C ['352 patent] at 7:43-48, Figs. 6-1, 8-1, 9-1.

The disclosed algorithm—mirroring the ordered steps "(a)," "(b)," and "(c)," in the claims—also naturally traverses sequentially in time through the one-dimensional array of values, first identifying a peak, then a valley, and then another peak in the finger profile. *Id.* at 9:51-60. For instance, with respect to the first peak, the specification discloses traversing through the profile point-by-point until the values stop increasing, explaining that "***[a]t this point***, the peak has been found." *Id.* at 9:51-60. Similarly, the specification explains that "eventually" the minima will be detected when the array of values, analyzed in sequence, stops decreasing. *See id.* at 9:61-10:8. Finally, with respect to the second peak, the specification discloses that the array of values "will ***eventually start*** to decrease," and that "[a]t this point" the second peak has been found. *See id.* at 10:19-25. As Elan's expert Mr. Dezmelyk concedes, the disclosed algorithms all require traversal of the finger profile to identify a maximum, followed by a minimum and further followed by a second maximum—no other algorithm is described or disclosed, much less one for considering a two-dimensional image. Exh. D [Dezmelyk Tr.] at 148:25-149:12.

C. "Identify" (Claims 1 and 18)

Term	Apple's Construction	Elan's Construction
"identify"	Recognize a value to be.	Plain meaning.

Elan's contention that this term requires no construction is difficult to understand in light of the events of the *Synaptics* litigation, which unequivocally confirmed that there are critical shades of meaning within this claim term that require the Court's attention. Indeed, in *Synaptics*, after claim construction and following review of the parties' summary judgment briefs, Judge Breyer recognized a latent dispute between the parties over the meaning of this very term. In advance of oral argument on summary judgment, Judge Breyer thus propounded specific questions regarding what it means for "maxima" and "minima" to be "identified," and the parties subsequently argued the matter. *See, e.g.*, Exh. G [Oct. 5, 2007 SJ Hearing Tr.] at 5:17-20. Ultimately, in ruling on summary judgment, Judge Breyer had to provide additional guidance regarding the "identifying" step of the claims. *See* Exh. N [Oct. 26, 2007 SJ Order] at 6.

Unfortunately, despite Elan's contention that no construction is necessary, a similar latent claim construction dispute threatens to arise here absent the Court's guidance. Although Elan's infringement contentions provide only superficial notice of Elan's theories, it appears that Elan's theory is that the "identifying" steps of the claims are satisfied if a value corresponding to a maximum is merely recorded in memory, even if there is no recognition by the system that this value actually corresponds to a maximum or minimum. To avoid unnecessary disputes later in the case, Apple asks that the Court construe the term "identify" to clarify that the term means "recognize a value to be."

Apple's proposed definition confirms the basic requirement that values corresponding to maxima and minima at least be recognized as being maxima and minima. This construction is consistent with not only the ordinary meaning of the claim term but with the very nature of the claimed invention as recited in the claims and described in the specification. Indeed, the specification explains that when values in the finger profile have certain characteristics, the peak has been found and the value of the Xpeak1 variable is then set to a value corresponding to that peak. Exh. C ['352 patent] at 9:51-55; *see also* Exh. B [Von Herzen Decl.] at pp. 7. Likewise, when values in the finger profile have other characteristics, the valley is detected and the XValley

variable is set to the corresponding value. Exh. C ['352 patent] at 10:1-4; *see also* 10:9-25 (describing identification of second maximum and setting of variable XPeak2). In this way, the specification confirms that values are identified as "maxima" and "minima" when they are recognized as being maxima and minima. *See* Exh. D [Dezmelyk Tr.] at 198:23-199:13.

Elan has failed to raise any objection to the substance of Apple's construction or offer any meaningful evidence to the contrary. This is not surprising. During the *Synaptics* litigation, Elan argued strenuously that the term should be understood in a manner consistent with Apple's proposed construction here. For instance, during the *Synaptics* summary judgment hearing, Elan argued that the identification process of the patent included an analysis of the traces "trace by trace, until you find the trace that has the highest value." *See* Exh. G [Oct. 5, 2007 SJ Hearing Tr.] at 31:17-23. This analysis led to the recognition not only of the fact that a certain value corresponded to a maximum or minimum, but the actual values of those maxima and minima in the finger profile. Elan summed this up in a manner strikingly resonant with Apple's construction: "That is what an identification is. ***It is information sufficient that the system knows what that value is***." *See* Exh. G [Oct. 5, 2007 SJ Hearing Tr.] at 32:20-22; *see also id.* at 30:18-24, 31:17-32: 33:17-19. In other words, Elan concedes that to "identify" a maxima or minima, the system must have information necessary to "know[] what that value is." Given Elan's unequivocal position on this issue in the *Synaptics* litigation, its attempts to resist Apple's proposed construction should be rejected.

D. "In Response To" (Claims 1 and 18)

Term	Apple's Construction	Elan's Construction
"in response to"	After and in reaction to.	Plain meaning.

As with the claim term "identify," Apple asks that the term "in response to" be construed in accordance with its plain and ordinary meaning so as to avoid unnecessary belated claim construction disputes during summary judgment or, even worse, in the midst of trial. In particular, although the claims recite "providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima," Elan apparently seeks

to preserve its ability to contend that this "indication" can instead be provided based on something other than the identification of the two maxima specifically recited by the claim.

Consistent with the plain and ordinary meaning of the claim term "in response to," the intrinsic record of the '352 patent confirms that the inventors described and claim to have invented a technique in which two maxima determine the presence of two fingers on the touchpad. As discussed above, the claims recite that they are directed to "detecting the operative coupling of multiple fingers" and that this process includes three initial steps: the identification of a first peak, a minima, and, finally, a second peak. *See* Exh. C ['352 patent] at 16:14-20 (Claim 1). Immediately following these steps, the claims recite providing an indication of the presence of two fingers "in response to" the identification of the two recited maxima. In other words, the claims recite that it is the recognition of the two maxima identified in the foregoing elements that determines that two fingers are present. *Id.* at 16:21-23. The specification also confirms that it is the identification of maxima indicative of fingers in contact with that touchpad that determines the finger count:

> In particular, the circuitry, software or firmware of the touchpad circuitry, such as that shown in FIG. 2, ***detects a first maxima 85 indicative of a first finger*** in operative proximity to the touchpad 30, followed by a minima 90 indicative of a space between the fingers, and further followed by ***another maxima 95 indicative of a second finger*** operatively coupled to the touchpad 30.

Exh. C ['352 patent] at 6:29-35; *see also* Exh. B [Von Herzen Decl.] at pp. 8-9. Thus, recognition of the two claimed maxima alone is indicative of the presence of fingers on the touchpad.

During prosecution, the applicant confirmed the primacy of detecting two maxima for determining the presence of two fingers. In distinguishing prior art that detected the presence of two fingers on the basis of a more complex algorithm that analyzed the overall capacitive values of the touchpad, the applicant stated expressly that the feature which made the invention unique over the prior art was this direct correlation between maxima and finger count:

> The ***present invention uniquely utilizes the detection of two maxima to determine if two fingers are present*** on the touchpad.

Exh. O [Apr. 8, 1998 Amendment] at 352 CFH 0536; *see also* Exh. P [Von Herzen Tr.] at 102:6-

105:8.

> The remaining claims are independent method and apparatus claims 1 and 35, and claims dependent thereon. ***These claims are directed to the feature of the invention which detects multiple fingers by detecting the multiple maxima in the profile on the touchpad. This distinguishes the prior art***, which calculates multiple fingers by detecting a rapid movement in the total centroid.

Exh. O [Apr. 8, 1998 Amendment] at 352 CFH 0535.

> The ***present invention*** addresses this deficiency of the '591 method by detecting two maxima in the profile information. ***This allows the detection of two fingers being present*** even if they are both placed down at the same time. Such a method is not shown or suggested by either of the Synaptics patents, which in fact teach away from this method.

Id. at 352 CFH 0536. Thus, the patentee represented repeatedly that the principle that set the very invention of the '352 patent apart from the prior art was the detection of the two maxima "to determine" if two fingers are present.[5] *See also* Exh. B [Von Herzen Decl.] at pp. 9-10. Having repeatedly distinguished the prior art on this basis, Elan should not now be permitted to claim that the indication of two fingers may be in response to some other combination of factors. *See, e.g.*, *Computer Docking Station Corp. v. Dell, Inc.*, 519 F.3d 1366, 1374 (Fed. Cir. 2008) (patentee limits claim scope by "clearly characterizing the invention in a way to try to overcome rejections based on prior art").

E. "Means For Selecting An Appropriate Control Function" (Claim 19)

Term	Apple's Construction	Elan's Construction
"means for selecting an appropriate control	The recited function is selecting an appropriate control function based on	The recited function is selecting an appropriate control function based on a combination of a

[5] It is precisely this concept—of using strictly the identification of two maxima "to determine" the presence of two fingers and not some other extraneous event(s)—that Apple intends to capture through its proposed construction.

[6] As explained in Apple's portion of the parties' Joint Case Management Statement Regarding Claim Construction Logistics, there are several means-plus-function limitations of the '352 patent that are indefinite for failure to disclose adequate corresponding structure. D.I. 67 at 5; *see also* D.I. 84, Exh. A; Exh. B [Von Herzen Decl.] at pp. 17-23. Although the Court has declined to hear a motion for summary judgment of indefiniteness at this stage, indefiniteness is nonetheless "a matter of claim construction, and the same principles that generally govern claim construction are applicable to determining whether allegedly indefinite claim language is subject to construction." *Praxair, Inc. v. ATMI, Inc.*, 543 F.3d 1306, 1319 (Fed. Cir. 2008). Accordingly, Apple addresses here the lack of corresponding structure for the "means for selecting an appropriate control function" limitation identified among the parties' top claim construction disputes. Because this limitation is representative of the indefiniteness issue for other limitations, Apple will move for summary judgment of indefiniteness of this and like limitations, as

function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers ”	a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. Because the ***specification does not disclose a corresponding structure,*** this limitation is indefinite.[6]	number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. The ***corresponding structure*** is Analog multiplexor: 45 Capacitance measuring circuit 70: A to D convertor 80, Microcontroller 60 and/or software, firmware, or hardware performing the claimed function.

"For a patentee to claim a means for performing a particular function and then to disclose only a general purpose computer as the structure designed to perform that function amounts to pure functional claiming." *Aristocrat Techs., v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008); *see also Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1340-41 (Fed. Cir. 2008) ("[S]imply reciting 'software' without providing some detail about the means to accomplish the function is not enough."); *Net MoneyIN, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1367 (Fed. Cir. 2008); *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1383-85 (Fed. Cir. 2009). Rather, the specification must disclose the specific algorithm or algorithms that are used to perform the claimed function. *See Encyclopaedia Britannica, Inc. v. Alpine Elecs., Inc.*, 2009 U.S. App. LEXIS 26358 at *9 (Fed. Cir. Dec. 4, 2009) (*citing Aristocrat*, 521 F.3d at 1333), (Exh. Q).

Here, the parties agree that the function associated with this means-plus-function element is "selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers."[7] The central dispute is whether the specification's disclosure of touchpad hardware (analog multiplexor: 45 Capacitance measuring circuit 70: A to D convertor 80, Microcontroller 60) "and/or software, firmware, or hardware performing the claimed function" is adequate structure (Elan's position), or whether the specification fails to disclose and clearly link the required algorithm to be implemented in such software, firmware or hardware to actually perform the claimed function (Apple's position).

There can be no dispute that the invention of the '352 patent is a computer-implemented

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appropriate under the Court's schedule.

[7] The parties continue to dispute the meaning of the term "control function," but that dispute has no bearing on the corresponding structure, if any, for this limitation.

invention to which the holdings of *Aristocrat* and its progeny apply. In other words, the function of this claim element is to distinguish among the different types of button, mouse, or cursor operations on the basis of three different gesture-related criteria. As such, the process of "selecting a control function" should, at a minimum, include (1) an algorithm for classifying the gesture related criteria (and any combinations thereof) and (2) some sort of logic for connecting the classifications to particular control functions. However, no such algorithms are disclosed in the specification, nor does Elan point to any. While the specification discloses exemplary algorithms and flow diagrams for detecting multiple contacts with the touchpad (e.g., Figs. 5, 6, 8 and 9), the specification stops short of providing algorithms for how multiple contacts are used to perform downstream functions. At the very most, the specification discloses a few examples of proposed mappings between specific gestures and control functions. But a few examples does not an algorithm make. In fact, in describing the mapping of gestures to control functions, the specification explains that "such sequences—all of which may be regarded as gestures—can be mapped to control functions in ***numerous ways*** . . . ." Exh. C ['352 patent] at 13:16-18. Thus, far from disclosing an algorithm for "selecting an appropriate control function," the specification simply asserts that the claimed function can be done in "numerous ways." *See* Exh. B [Von Herzen Decl.] at pp. 17-18. Thus, the patent actually tends to acknowledge a substantial gap in its disclosure.

Elan also appears to recognize this gap by proposing only basic hardware for a touchpad[8] and generic "software, firmware or hardware performing the claimed function" in lieu of a specific algorithm. Of course, "simply disclosing a computer as the structure designated to perform a particular function does not limit the scope of the claim to 'the corresponding structure, material, or acts' that perform the function, as required by section 112 paragraph 6." *Aristocrat*,

[8] In particular, Elan points to a multiplexer, a capacitance measuring circuit, and an analog to digital converter. While these elements are necessary to measure capacitance, they are merely the building blocks of any capacitance touch sensor. One of ordinary skill in the art would not use a capacitance touch sensor alone to select an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers and then interpret those values to distinguish control functions or gestures. One of ordinary skill in the art would not understand the '352 specification as disclosing an algorithm for carrying out these tasks. *See* Exh. B [Von Herzen Decl.] at pp. 17-18.

521 F.3d at 1333. Elan's expert witness, Mr. Dezmelyk, does little better. For instance, Mr. Dezmelyk opines that "[t]he patent also discloses that firmware or software may be programmed to perform the function of selecting a click function or any other appropriate control signal." Exh. M [Dezmelyk Summary] ¶ 31. Yet, Mr. Dezmelyk does not point to any algorithm in the specification for actually performing the claimed functions. Instead, he resorts to the knowledge of one skilled in the art, opining that "[d]etermining a control function and writing a software or firmware routine to interpret contact sequences to implement that control function was well within the knowledge of those skilled in the art at the time of the '352 patent." *Id.* "That argument, however, conflates the definiteness requirement of section 112, paragraphs 2 and 6, and the enablement requirement of section 112, paragraph 1." *Blackboard*, 574 F.3d at 1385. "A patentee cannot avoid providing specificity as to structure simply because someone of ordinary skill in the art would be able to devise a means to perform the claimed function." *Id.* Thus, Mr. Dezmelyk's "skill in the art" argument is completely irrelevant.

In view of the above, Apple respectfully requests that the Court decline to adopt Elan's purported "corresponding structure" and find that no corresponding structure is disclosed for performing the claimed function.

II. U.S. PATENT NO. 7,274,353

A. Background

Elan's '353 patent generally claims a touchpad that can function in two of three different input modes: key, handwriting, and mouse modes. Exh. R ['353 patent] at Abstract, 2:1-17. Understanding the '353 patent requires little explanation. Indeed, the entire disclosure of the '353 patent encompasses less than three columns of text. Briefly, the asserted claims of the '353 patent recite a "panel for touch inputting," and, as set forth below, require patterns printed on the panel that represent a mode switch between the different modes and that represent different operations in these modes. *Id.* at 3:60-4:65; *see also id.* at Fig. 1. More specifically, in key mode "the key patterns among the printed patterns simulate a keyboard," whereas in "handwriting mode, the handwriting region among the defined regions serves to [provide] handwriting input," and in "mouse mode, the defined regions provide a cursor moving region and [] horizontal and

vertical scroll bars for input for operation." *Id.* at 2:1-17.

B. "A First Pattern On Said Panel For Representing A Mode Switch To Switch Said Touchpad Between A Key Mode And A Handwriting Mode" (Claims 1, 4, 7, and 10)

Term	Apple's Construction	Elan's Construction
"a first pattern on said panel for representing a mode switch to switch said touchpad between a key mode and a handwriting mode"	A single graphic printed on said panel representing a mode switch that switches from key to handwriting mode and from handwriting to key mode.	Information on the panel visible to the user, indicating where the user can touch to change modes.

The parties dispute whether the phrase "a first pattern on said panel" calls for a pattern printed on the panel (Apple's position) or encompasses any information on the panel visible to the user, including specifically icons displayed on a touchscreen (Elan's position). Because the '353 claims and specification unambiguously describe the "invention" as having printed patterns—and nowhere discloses implementing the invention without such printed patterns—Apple's construction should be adopted.

The asserted claims specifically recite "a first pattern ***on*** said panel" and "a plurality of second patterns ***on***" a plurality of regions defined on said panel. Exh. R ['353 patent] at 3:61-4:7; *see also* Exh. B [Von Herzen Decl.] at p. 26 (explaining that, in the context of the '353 patent, one of ordinary skill in the art would understand the claims as having fixed printed patterns). This claim language gives effect to the requirement that patterns are printed on the touchpad, a feature of the invention emphasized throughout the specification, including the Summary of the Invention:

> According to the ***present invention***, a capacitive touchpad integrated with key and handwriting functions can provide multiple operation modes, such as keypad, handwriting and mouse. The panel of the ***present touchpad*** is defined into several regions with ***plenty of patterns printed thereon*** for representing the interfaces corresponding to the operation modes.

Exh. R ['353 patent] at 2:6-12. By describing "the present invention" and "the present touchpad" as having a panel "defined into several regions with ***plenty of patterns printed thereon*** . . . ," this statement unambiguously describes the invention as a whole as containing patterns printed on the touchpad panel. Indeed, the very next sentence of the specification, still describing "the present invention," states that "[i]n the key mode, the key patterns ***among the printed patterns*** simulate a

keyboard." *Id.* at 2:12-13. This repeated characterization of the "present invention" within the "SUMMARY OF THE INVENTION" section is "strong evidence" that the claims should be read to encompass only patterns printed on the panel, and not simply any information visible through the panel. *Scimed Life Sys., Inc. v. Adv. Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1343 (Fed. Cir. 2001) ("the characterization of [a limitation] as part of the 'present invention' is strong evidence that the claims should not be read to encompass the opposite structure."); *Netcraft Corp. v. Ebay, Inc.*, 549 F.3d 1394, 1398 (Fed. Cir. 2008) (explaining that a description of "the present invention" ordinarily "describes the invention as a whole").

The remainder of the specification supports that conclusion. For instance, the Abstract explains that the touchpad has "several patterns ***printed thereon*** for the operation modes thereby." Exh. R ['353 patent] at Abstract. Furthermore, the disclosed embodiments have patterns printed on the touchpad panel. This is particularly clear from Figure 1, which depicts in the bottom portion of the figure the appearance of the touchpad at all times:

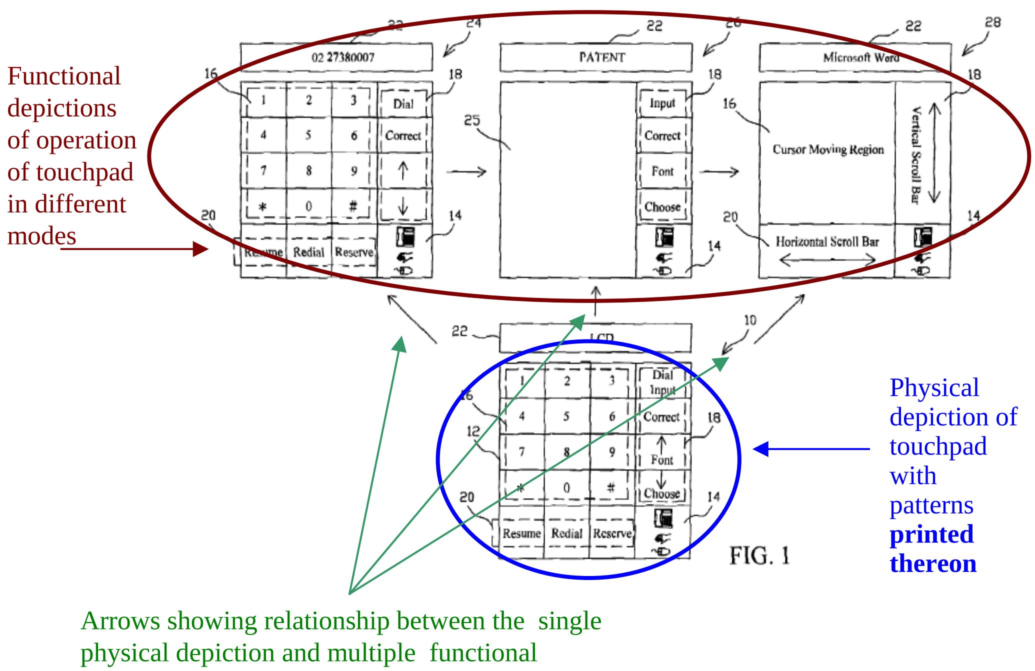

FIG. 1

Id. at Fig. 1 (annotations added). The specification makes clear that the bottom portion of Figure 1 is the fixed appearance of the touchpad because it uniformly refers only to this portion, which is labeled as item 10, as the "touchpad." *See, e.g., id.* at 2:41-42 ("A touchpad 10 . . . ."); *id.* at 2:60 ("When the touchpad 10 is switched to the key mode . . . .). The top portions of the figure, on the

other hand, are referred to as mere "arrangement[s]" and are purely functional depictions of the operation of the touchpad. *See, e.g.*, *id.* at 2:65-67 ("The arrangement referred by 24 serves as an input device or interface of a telephone. . . ." in key mode); *id.* at 3:4-13 (describing arrangement 26 in handwriting mode); *id.* at 3:14-19 (describing arrangement 28 in mouse mode); *see also* Exh. P [Von Herzen Tr.] at 80:7-85:7. In line with this, regions of the touchpad in the top portions of Figure 1 are uniformly referred to using the same numbers as corresponding regions in the bottom portion of Figure 1. As is customary with patent figures, this consistent numerical referencing confirms that the patent is referring to the same object with the same printed patterns.

Notably, the bottom portion of Figure 1 includes patterns pertaining to different modes that are nonetheless printed in the same region. Exh. B [Von Herzen Decl.] at p. 27. For instance the bottom figure shows a defined region with both the word "Dial" and the word "Input" on it. This indicates that in "key mode," that defined region is used as a button to "Dial," while in "handwriting mode" that region serves as a button to provide "Input." Likewise, the bottom figure shows buttons labeled as a traditional phone keypad with dashed box surrounding all twelve buttons labeled as element 16. Thus, in key mode, the telephone buttons are operative, while in mouse mode the dashed box indicates that the buttons are inoperative, the dashed box instead being a cursor moving region. Exh. R ['353 patent] at 2:6-13 (referring to "the key patterns among the ***printed*** patterns"). If, on the other hand, these and other patterns could be dynamically digitally displayed, as Elan contends, the specification simply would not depict the touchpad as simultaneously having patterns pertaining to different modes in the same region.[9]

[9] There is no disclosure of a dynamic display in the '352 patent at all. The only disclosure of a dynamic display is "LCD 22" which is shown in both Figures 1 and 2 and described consistently throughout the specification as a separate component of the apparatus from panel for touch inputting 12. The disclosure of a separate LCD for displaying output would make little sense if the panel for inputting were actually a touch screen that could dynamically display data. Moreover, the claims specifically recite a "touchpad" for input and not a "touchscreen." In this particular context, touchpads are input-only devices that have fixed printed patterns, while touchscreens are input-output devices that dynamically display images and receive touch inputs from the user. *See, e.g.*, Exh. B [Von Herzen Decl.] At p. 28; Exh. P [Von Herzen Tr.] at 93:11-94:4. Indeed, although the applicants recognized the distinction between a touchpad and touchscreen in the prior art, they described and claimed the invention of '353 as covering only a "touchpad." *See, e.g.*, Exh. S [Oct. 12, 2006 Reply to Office Action] at 353 CFH 0101-0102. There is simply no hint anywhere in the record that the invention covers or even contemplated a dynamic display.

Indeed, if Elan were correct, Figure 1 itself would make no sense—if the top three depictions in Figure 1 reflect a dynamic display in different modes, the bottom depiction of Figure 1 is pointless. Why would the touchpad simultaneously show patterns that are functional in only certain modes if it could dynamically display the appropriate patterns for each mode?

In short, describing the "invention" in terms of only printed patterns and disclosing no broader embodiments, it would be inappropriate to now understand the '353 patent as encompassing more. *See, e.g.*, *Kinetic Concepts*, 554 F.3d at 1019.

C. "A Plurality Of Second Patterns On Said Plurality Of Regions For Operation In Said Key And Handwriting Modes" (Claims 1, 4, 7, and 10)

Term	Apple's Construction	Elan's Construction
"a plurality of second patterns on said plurality of regions for operation in said key and handwriting modes"	Two or more graphics that are printed on the specific regions and are present in and perform operations in both key and handwriting modes.	Visual information on the panel that delineates "virtual regions" to convey to the user where to touch to enter alpha numeric data in key mode or enter handwriting data in handwriting mode.

As explained above in the context of the "first pattern" limitation, the parties dispute whether this term is limited to patterns printed on the touchpad panel. The argument and analysis for that term apply directly here, and Apple does not repeat it. *See supra* Part II.B. The parties further dispute whether the same "plurality of second patterns" requires that the multiple patterns are present in both key *and* handwriting modes (Apple's position), or whether the "plurality of second patterns" need only be present in key *or* handwriting modes (Elan's position).[10] Both the unambiguous claim language and the specification support Apple's interpretation.

The claims plainly state that "a plurality of second patterns are present for operation in key ***and*** handwriting modes." Elan impermissibly attempts to rewrite the claims by changing "and" to "or." *See, e.g.*, *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1382 (Fed. Cir. 2008) ("Courts do not rewrite claims; instead, we give effect to the terms chosen by the patentee."). The substitution of "or" for "and" is not only at odds with the plain meaning of the

[10] Elan apparently contends that the term "plurality" can encompass only a single graphic. In particular, Elan's claim construction expert opines that "a plurality of regions defined on the touchpad requires one or more specific regions . . . ." Exh. M [Dezmelyk Summary] ¶ 34. If this is truly Elan's contention, it is flatly inconsistent with the ordinary meaning of "plurality" as two or more. *See, e.g.*, *Resqnet.com, Inc. v. Lansa, Inc.*, 346 F.3d 1374, 1383 (Fed. Cir. 2003) ("'[P]lurality' ordinarily means 'at least two'").

claims, but it disregards the overall structure of the claims. *See Phillips v. AWH Corp.*, 415 F.3d 1305, 1314 (Fed. Cir. 2005) (en banc). Namely, the claims enumerate the different patterns present on the touchpad panel: a "first" pattern for the mode switch and a plurality of "second" patterns for operating the touchpad in different modes. There is no enumeration of additional distinct enumerated patterns corresponding to different input modes, as would be required under Elan's construction. To the contrary, the claims simply use the word "and" to confirm that the same patterns are present and operational on the touchpad in both "key" and "handwriting" modes. Put another way, the claims do not recite "a plurality of second patterns . . . for operation in said key mode" and "a plurality of third patterns for operation in said handwriting mode"—they require "a plurality of second patterns on said plurality of regions ***for operation in said key <u>and</u> handwriting modes***." Elan's attempt to rewrite the claims should be rejected.

Indeed, Elan's redrafting also does not comport with the specification. As explained above, the bottom portion of Figure 1 of the patent shows the same plurality of patterns pertaining to different modes printed in the same region. For instance, the Figure discloses a region with the pattern "Dial/Input" printed on it that is operative in both key and handwriting modes. As explained above, in key mode, the pattern is operative as a "Dial" button, while in handwriting mode it is operative as an "Input" button. *See supra* Part II.B; *see also* Exh. B [Von Herzen Decl.] at pp. 31-33. This would not be so if, as Elan contends, the claims envisioned different patterns in different input modes. Because Apple's construction follows the plain meaning and structure of the claims, and is supported by the specification, the Court should adopt it.

III. U.S. PATENT NO. 5,764,218

A. Background

Early touchpads used in laptop computers —and in some cases still used in laptop computers—included mechanical buttons, similar to the buttons on a mouse, that allowed the user to perform cursor tracking, click, double-click, drag, and similar operations familiar to mouse users. *See* Exh. B [Von Herzen Decl.] at pp. 33-34*; see also* Exh. T ['218 patent] at 1:43-2:19. However, using mechanical buttons adds complexity and cost, and can cause other problems. *Id.* at 2:16-40. The invention of the '218 patent addresses these issues and provides methods and

apparatuses for simulating a mechanical button using the touchpad alone. *Id.* at 2:44-61. These inventions enabled more intuitive user-computer interactions with reduced complexity and cost and are widely used today in laptop computers and other touch-sensitive devices.

To enable touchpads to perform operations that previously required both a touchpad and mechanical buttons, the '218 teaches how to detect and keep track of the duration of both contact intervals (the temporal duration of the user's contact with the touchpad) and gap intervals (the temporal duration between contact intervals). The '218 patent explains in detail how the states of mechanical buttons can be simulated using the touchpad alone based on these contact and gap intervals. *See generally id.* at 3:37-13:26. As an example, the patent explains that a "sticky drag" operation, which allows users to drag items around a display, can be invoked by detecting, in order, (1) a short contact interval, (2) a short gap interval, and (3) a long contact interval. *Id.* at 5:57-7:13. In other words, a quick tap of the touchpad followed shortly thereafter by extended contact with the touchpad (presumably coupled with motion) can be used to drag items around the screen. The specification discloses how to use the contact and gap intervals in a similar fashion to perform a wide range of operations including cursor manipulation, click, multi-click, drag, click-and-drag, and multi-click-and-drag without the use of mechanical buttons. *Id.* at 2:44-61.

B. "Cursor Control Operation" (Claims 1 and 5)

Term	Apple's Construction	Elan's Construction
"cursor control operations"	Operations by a cursor controller such as a drag, single-click and multiple click.	Providing of positional data to effect movement of the cursor (i.e., cursor tracking operation).

The sole claim construction dispute relating to the '218 patent presented here relates to the breadth of operations disclosed and claimed therein. In contrast to Elan's approach to its own patents, Elan seeks to narrow Apple's '218 patent to exclude scope that is expressly described and claimed. Specifically, the parties dispute whether the term "cursor control operations" should be limited solely to a cursor tracking operation based on one example from one part of one figure of the patent and extrinsic evidence (Elan's position), or should encompass other control operations as described in the claims, specification and file history (Apple's position).

Claims 1 and 5 recite elements distinguishing between three different "cursor control operation[s]" "based on the duration of . . . contact and gap intervals." Exh. T ['218 patent] at

13:35-38. Thus, claims 1 and 5 require that there be at least three different "cursor control operations" and that they be distinguishable based on differences in contact and gap intervals. Apple's construction, by allowing for a variety of cursor control operations, correctly reflects this requirement. Elan's construction, by contrast, limits these claims to only a single operation, "(*i.e.*, cursor tracking operation)." There is simply no basis for Elan's effort to narrow the limitation in this way.

At the outset, Elan's unduly-narrow construction of cursor control operation is flatly inconsistent with the definition of that term that was provided by Apple during prosecution of the '218 patent. *See Edwards Lifesciences LLC v. Cook Inc.*, 582 F.3d 1322, 1334 (Fed. Cir. 2009) (a patentee's definition controls where "the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history"); *Phillips*, 415 F.3d at 1317 ("Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent."). In responding to an office action, Apple specifically explained the meaning of "cursor control operation" in the context of claim 1 by stating that "claim 1 recites steps of distinguishing between a ***first cursor control operation (e.g., a drag)***, a ***second cursor control operation (e.g., a single-click)*** and a ***third cursor control operation (e.g., a multiple-click).***" Exh. U [Dec. 26, 1996 Amendment] at 218 CFH 0247. Thus, the term "cursor control operation," as explained by the applicant, is broad enough to include within its scope not just a cursor tracking operation but also, at a minimum, dragging and clicking operations, as reflected in Apple's construction.

Beyond this, Apple's position is also supported by the specification's description of the very purpose of the '218 invention as to "enable[] an operator to perform with a single touch-sensitive input device numerous control operations, such as cursor manipulation, click, multi-click, drag, click-and-drag, and multi-click-and-drag operations." Exh. T ['218 patent] at Abstract; *see also id.* at 1:24-2:15, 2:56-61. To provide that functionality, the Detailed Description of the invention—including Figure 5 upon which Elan relies—describes various ways of distinguishing among different cursor control operations based on their contact and gap intervals. For example, Figure 5 describes how to identify the cursor control operation as a

"cursor tracking operation," a "click operation," or a "drag operation" based on comparing the contact and gap intervals to predetermined intervals. *Id.* at 5:57-6:55. Indeed, while the specification discloses only one cursor tracking operation, it discloses numerous other cursor control operations including a click, double-click, drag, click-and-drag, and drag-and-click operations as depicted in Figures 5A to 5F. *See id.* at 6:9-17, Figs. 5A-5F. These are precisely the types of cursor control operations that are recited in claims 1 and 5, and the specification contemplates no embodiment in which the touchpad provides only cursor tracking, as limited by Elan's proposed construction. *See* Exh. B [Von Herzen Decl.] at pp. 36-38. In this regard, Elan asks the Court to improperly read out of the claims not just the preferred embodiment, but numerous contemplated and claimed embodiments. *See Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1275 (Fed. Cir. 2007) ("[w]e normally do not interpret claim terms in a way that excludes embodiments disclosed in the specification"). Yet, even Elan's own expert was forced to concede that the '218 patent includes cursor control operations beyond a mere cursor tracking operation:

> So to the extent that there's three ***cursor control operations*** you asked me to identify, certainly a cursor positioning would be one, ***dragging*** would be two, ***click-and-drag*** would be three and ***multi-click and dragging*** would be four.

Exh. D [Dezmelyk Tr.] at 255:1-257:7.

Notwithstanding the above, Elan appears to urge this Court to pluck a narrow construction of "cursor control operation" from one line in the specification stating that "[a]s shown in Part A of Fig. 5, if the first contact interval lasts longer than the maximum tap interval (*i.e.*, if $t_{T1} > t_{MAX}$), the operation of the touch-sensitive cursor-controlling input device during the first contact interval is identified as a cursor control operation (i.e., a cursor tracking operation.)." Exh. T ['218 patent] at 6:9-13. Elan apparently contends that this constitutes an explicit definition of the claim term "cursor control operation." Yet, Elan's attempt to portray this statement as a definition actually represents a misreading of the specification. This statement is simply describing one exemplary cursor control operation that can be identified on the basis of contact interval length. The parenthetical in the statement and use of "i.e.," clarifies that, in the example of Part A of Fig. 5 being discussed in that sentence, the type of cursor control operation that is being detected is a "cursor tracking operation." There is no basis for importing that limited

example into the term "cursor control operation" as a whole, let alone where it would contradict the term's overall usage in the intrinsic record and leave claims 1 and 5 without any connection to the disclosed invention of simulating a mechanical button with a touchpad. In any event, to "act as its own lexicographer and assign to a term a unique definition that is different from its ordinary and customary meaning[,] . . . a patentee must clearly express that intent in the written description." *Helmsderfer*, 527 F.3d at 1381 (Fed. Cir. 2008). That intent is not even remotely present here, particularly when weighed against the clear statements in the file history.

IV. U.S. PATENT NO. 7,495,659

A. Background

As noted above, touchpads are made from a collection of sensors that are capable of detecting the proximity of a finger to the pad through such things as capacitance or pressure changes. The individual sensors (*e.g.*, traces) in a touchpad are arranged on the touchpad in such a way to map a coordinate system to the touchpad. Using the values reported by the traces and the location of the traces, a touchpad controller can report the coordinates of a contact to a host device when a user actuates (*i.e.*, touches) the portion of the touchpad containing the sensor. However, in certain instances, communicating these "native" sensor coordinates to the host device may not be the most efficient use of the information generated at the touchpad. Accordingly, the '659 patent teaches translating these native coordinates into a series of "logical device units" representing areas of the touchpad that can be actuated by users. As an example, the specification explains that one manner of doing this is to group "at least a portion of the native coordinates 40 together to form one or more virtual actuation zones." Exh. V ['659 patent] at 6:65-67; *see also* Exh. B [Von Herzen Decl.] at pp. 42-43;. More specifically, the specification offers the example of dividing a touchpad comprising 1024 sensors into 128 "virtual actuation areas," each including eight sensors. *Id.* at 7:13-21. In this example, it is more beneficial to communicate to the host device that a specific zone has been actuated rather than a discrete coordinate value.

In connection with the use of such "logical device units," the patent further teaches filtering redundant or non-essential data. For example, when a user's finger is on the touchpad

and moving slowly, it may nonetheless remain on the same "logical device unit." In these circumstances, the controller need not report a change because the user is still just actuating the same "logical device unit." In the words of the specification, there has not been an "actual event" worthy of reporting. *See, e.g.*, *id.* at 7:66-8:1. Similarly, when the user's finger is simply resting on a spot and moving only slightly because of finger balance, a considerable amount of noise is generated, which, of course, also need not be reported. *Id.* at 7:63-66. By translating native coordinates and filtering in this manner, system performance and battery life is improved because the system is not constantly bombarded by with such inconsequential input.

B. "Sensors Configured to Map the Touch Pad Surface Into Native Sensor Coordinates" (Claim 1)

Term	Apple's Construction	Elan's Construction
"sensors configured to map the touch pad surface into native sensor coordinates"	Sensors configured to map the touchpad surface into the sensor coordinates of the touchpad.	Sensors configured to produce signals indicating native sensor coordinates.
"native sensor coordinates"	The sensor coordinates of a touchpad.	Coordinates indicating the absolute position of an object on or near the touchpad.

The parties' dispute is centered on the relatively simple concept of what constitute native sensor coordinates of a touchpad: are "sensors configured to map the touchpad surface into native sensor coordinates" simply physical sensors that map the touchpad into a coordinate system (Apple's position), or sensors that produce signals wherein the signals themselves indicate the absolute position of an object on or near the touchpad (Elan's position).

Apple's proposed construction follows straightforwardly from the claim language. Indeed, Apple's construction tracks the claim language nearly verbatim, except to clarify that the claimed "native sensor coordinates" correspond to the mapping of the touchpad into a coordinate system, or, more simply, "the sensor coordinates of the touchpad." This understanding follows from the claim language. The claim term "map the touch pad surface into native sensor coordinates," on its face, makes clear that the "native sensor coordinates" are properties of the actual "touch pad," not objects that are "on or near the touchpad," as erroneously indicated by Elan's construction. The claim term "native" reinforces this meaning, indicating that the recited "sensor coordinates" correspond to an innate property of the touchpad, not some other object. *See* Exh. B [Von Herzen Decl.] at pp. 43-46.

Elan's proposed construction further attempts to introduce an extraneous limitation into the claims and require that the sensors themselves provide signals that actually indicate native sensor coordinates. That is, Elan appears to contend that a touchpad sensor cannot merely provide, for instance, a raw voltage indicating that it has been triggered, but must also provide actual positional information within its signal. For instance, Elan's expert, Robert Dezmelyk, opines that "'[n]ative sensor coordinates' are coordinates indicating the absolute position of an object on or near the touchpad. Those coordinates (x, y, r, θ, etc.) are calculated ***from the data acquired from the sensors*** and reflect a point on the surface of the touchpad." Exh. M [Dezmelyk Summary] ¶ 41. However, the claims merely state that the sensors are "*configured* to map the touch pad surface into native sensor coordinates." *See* Exh. V ['659 patent] at 20:8-9. Thus, the claim language confirms that it is the mere ***configuration*** (*e.g.*, physical layout) of the sensors that represents the information reflecting native sensor coordinates that ultimately allows the controller to determine where the finger or object is. Reinforcing this understanding, the claim further states that the controller receives from "one or more sensors native values ***associated with*** the native sensor coordinates." *Id.* at 20:13-14. In other words, the sensor signals themselves do not necessarily indicate native sensor coordinates, but are merely "associated with" native sensor coordinates. This alone demonstrates that Elan's proposed construction should be rejected.

Consistent with the above, the specification of the '659 patent confirms that Apple's proposed construction is most in line with the invention described and claimed therein. The '659 patent specification explains that sensors map the touchpad into physical or native sensor coordinates:

> The sensors of the touch pad 36 are configured [to] produce signals associated with the absolute position of an object on or near the touch pad 36. ***In most cases, the sensors of the touch pad 36 map the touch pad plane into native or physical sensor coordinates*** 40.

Exh. V ['659 patent] at 5:38-43. By equating "physical" coordinates with "native" coordinates, the specification confirms that the "native sensor coordinates" are merely the raw "physical" coordinates of the sensors within the touchpad, or more simply, "sensor coordinates of a touch

pad." Likewise, the specification explains that "the controller may detect the changes in sensor levels at each of the native sensor coordinates and thereafter determine the current location of the user's finger on the touch pad . . . ." *Id.* at 9:53-57. Thus, the patent distinguishes between "native sensor coordinates" and the location of an object on the touchpad (*i.e.* "the user's finger"). Elan's attempt to conflate these two things should thus be rejected.

Moreover, even if Elan were correct that "native sensor coordinates" referred to the position of an "object on or near the touch pad," Elan's construction should be rejected merely by virtue of its attempt to require that the sensors produce "signals indicating" native sensor coordinates. Indeed, the specification, like the claims, states that touchpad sensors "produce signals ***associated with*** the absolute position of an object." There is no requirement that they produce signals actually indicating native sensor coordinates. *Id.* at 5:39-40. In fact, the specification explains that "[t]he sensors are generally dispersed about the touch pad with ***each sensor representing an x, y position***. In most cases, the sensors are arranged in a grid of columns and rows. Distinct x and y positions . . . are thus generated when a finger is moved across the grid of sensors within the touch pad." *Id.* at 2:32-38. Thus, the specification discloses utilizing the fact that sensors are—in the language of the claims—"configured" in columns and rows such that each of the sensors themselves "represent" an actual x, y position. *See also id.* at 9:53-57 ("[T]he controller may detect the changes in sensor levels at each of the native sensor coordinates and thereafter determine the current location of the user's finger on the touch pad based on the change in sensor levels at each of the native sensor coordinates."). In other words, the controller may determine an x, y position based on the mere fact of having received a signal from a specific sensor, which the controller understands is part of a grid arrangement. Thus, the sensor signal itself need not contain any information other than an indication that the sensor has been triggered. Narrowly requiring that the sensor signal contain such additional information, as Elan proposes, simply does not comport with this disclosure.

C. "One Or More Logical Device Units" (Claims 1, 8, 10, 12, and 13)

Term	Apple's Construction	Elan's Construction
"one or more logical device units"	One or more actuation zones representing one or more areas of the	Discrete user actuation zones representing areas of the touch pad

	track [touch]pad encompassing native sensor coordinates.	encompassing groups of native sensor coordinates.

The parties largely agree on the construction of this term. In particular, the parties agree that the term "logical device unit" refers to groupings of native sensor coordinates that can be activated as a whole, which the specification and claims refer to as "actuation zones." *See, e.g.*, Exh. V ['659 patent] at 20:18-20 (claim 1 states that "the logical device units associated with areas of the touch pad that can be actuated by a user"); *id.* at 10:42-45 ("In most cases, the raw number of slices in the form of native sensor coordinates are grouped into a more logical number of slices in the form of logical device units (*e.g.*, virtual actuation zones)."); *see also* Exh. B [Von Herzen Decl.] at pp. 46-48. However, the parties continue to dispute three aspects of the meaning of this claim term. First, the parties' dispute whether the actuation zones must be "discrete" (Elan's position) or not (Apple's position). Second, the parties dispute whether the term "one or more" may encompass one ***or*** more (Apple's position) or requires more than one (Elan's position). And finally the parties dispute whether the actuation zones must encompass "groups" of native sensor coordinates (Elan's position) or whether they may encompass only a single native sensor coordinate (Apple's position). For the reasons set forth below, each of Elan's attempts to add these additional limitations to the claims should be rejected.

1. The Claims Do Not Require "Discrete" Actuation Zones

As to the first dispute, through the use of the word "discrete," Elan appears to contend that claims 1, 8, 10, 12, and 13 must be limited to virtual actuation zones that do not overlap. However, there is nothing in the claims, specification, or prosecution history to suggest that these particular claims should be so limited. *See* Exh. P [Von Herzen Tr.] at 58:4-18. To the contrary, the presence of the "discrete" requirement in ***other*** claims makes clear that the asserted claims ***do not*** include such a limitation. Specifically, Claim 33 of the '659 patent is specifically directed to a "touch pad whose entire touch sensing surface is divided into a plurality of ***independent and spatially distinct actuation zones***." Exh. V ['659 patent] at 23:1-3. Thus, to the extent the '659 patent claims non-overlapping virtual actuation zones, it does so in claim 33 and its dependents, ***not*** in claims 1, 8, 10, 12, and 13. *Phillips*, 415 F.3d at 1314 ("Differences among claims can

also be a useful guide in understanding the meaning of particular claim terms.").

2. The Claims Do Not Require Multiple Logical Device Units

Turning to the second issue, the claims refer to "one or more" logical device units. As such, they must encompass devices with one or more logical device units. The specification confirms this. In particular, the patent repeatedly uses as an example a touchpad with 1024 total sensors. *See, e.g., id.* at 16:35-37 ("In one particular embodiment, the touch pad 110 includes 1024 sensor coordinates that work together to form 128 zones."). In connection with this example, the patent explains as follows:

> The ratio of native sensor coordinates 40 to virtual actuation zones 42 may be between about 1024:1 to about 1:1, and more particularly about 8:1. For example, the touch pad may include 128 virtual actuation areas based on 1024 native sensor coordinates.

Exh. V ['659 patent] at 7:17-21. Thus, the ratio of sensors to actuation zones may be 1024:1. In other words, all 1024 sensors may be collected to form only a single actuation zone, as the claim language "one or more" indicates. Elan's construction, which permits only plural "logical device unit***s***," ignores both the plain claim language and this specification evidence.

3. The Claims Do Not Require Multiple Sensors

Finally, Apple's construction, which allows for a "logical device unit" to include only a single native sensor coordinate, is supported by the specification, which, as noted above, explains that "[t]he ratio of native sensor coordinates 40 to virtual actuation zones 42 may be between about 1024:1 to about 1:1 . . . ." That is, each individual native sensor coordinate may correspond to a single actuation zone, in which case the ratio of sensors to actuation zones is 1:1. Elan's position that the "logical device units" must encompass a "group" (*i.e.*, multiple) native sensor coordinates clashes with this disclosure. Furthermore, there is nothing in the claims to suggest that they should not encompass this embodiment. In this regard, Elan's proposed construction seeks to exclude from the scope of the claims the endpoints of the range of embodiments contemplated in the specification (*e.g.*, the range of devices with sensor to actuation zones from 1:1 up to 1024:1). There is no basis for such a limitation anywhere in the intrinsic or extrinsic record, and Elan's construction should thus be rejected.

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